

## AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. LITTLE in charge]

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Mean free-air temperatures and relative humidities for September, as determined from airplane weather observations, are given in table 1. The "departures from normal" given in the table are based on "normals" derived from the number of observations indicated in the note at the foot of the table, where the number of years over which the observations were taken are given by the figures in parentheses. In general, the numbers of observations available for computing "normals" for the higher levels are less than those available for the lowest levels (represented by the data given in the footnote). To compensate for this discrepancy, the "normals" are computed by the method of differences.

The mean temperatures for the month at the surface were slightly above normal over most of the country with the exception of northern and coastal New England, and New Mexico, western Texas, and parts of Utah, Arizona, Wyoming, Montana, Washington, and Oregon, where they were slightly below normal. The largest positive departures at the surface were generally to be found in the Mississippi Valley, especially in the south-central part of the country, where departures from  $+2^{\circ}$  to  $+3^{\circ}$  C were the rule. (See chart I.)

The departures from mean free-air temperatures for the month indicate that this above-normal thermal condition persisted markedly up to at least 5 km above sea level over a considerable area, particularly in the central Mississippi Valley region. On the other hand, Fargo, N. Dak., in the extreme north-central part of the country, had significant ( $>1^{\circ}$  C.) positive departures of temperature from normal only up to the 2.5 km level, above which the monthly means were very near normal but still positive at least up to 5 km; whereas Billings, Mont., to the west, had positive departures of nearly  $1^{\circ}$  C. up to 5 km. Mitchel Field (L. I.), N. Y., and Lakehurst, N. J., on the east coast, had only insignificant departures from normal up to 1 km, but had positive departures of slightly more than  $1^{\circ}$  C., above that level at least up to 4 or 5 km. San Diego, Calif., had departures between  $+1^{\circ}$  and  $+2^{\circ}$  C. at 1 and 1.5 km, but insignificant departures at the remaining levels for which data are available.

The departures from "normal" of relative humidities near the surface were largely of negative sign in the central part of the country (maximum  $-7$  percent at Oklahoma City), whereas the departures along the coastal regions were largely of positive sign (maximum  $+8$  percent at Norfolk, Va., and Washington, D. C.). The data for Washington, D. C., show a remarkably large average fall in humidity from the surface to 500 m, viz, 87 percent ( $+8$  percent departure), to 59 percent ( $-9$  percent departure).

The departures from "normal" of the mean free-air relative humidities for the month indicate that, except near the surface, the region which had above-normal temperatures in the central part of the country likewise had above-normal relative humidities with departures ranging from  $+4$  percent to as high as  $+14$  percent. The greatest positive departures were to be found in the extreme south-central portion of the country, especially in the layer from about 2.5 to 5 km above sea level, as exemplified by the data for Oklahoma City, Okla., and Kelly Field (San Antonio), Tex. ( $+14$  and  $+9$  percent, respectively, at 5 km). By comparing the mean monthly

relative humidities for El Paso, Tex., with those for neighboring stations, one is led to infer that the values for that place in the stratum from about 2 to 5 km were appreciably above normal (e. g., at 3 km we have El Paso, 70 percent; San Diego, 31 percent; Kelly Field, 61 percent; Salt Lake City, 40 percent; Cheyenne, 47 percent; Oklahoma City, 62 percent). (This inference is consistent with the above-normal precipitation which occurred in Texas and New Mexico in September.) In view of the distribution of positive departures, it may be stated that a "ridge" of relatively high humidity, extending in a southwest-northeast direction from about western Texas or New Mexico to about central Ohio, existed on the average during the month in the stratum from 2 to 5 km above sea level. In contrast to this "ridge", there is evidence that two "troughs" of relatively low humidity likewise existed on the average, running in approximately the same direction, one from the California coast to the Dakotas, and the other from the New England coast to about northern Alabama. These were most pronounced in the strata from 1 to 3 or more km above sea level, and 4 to 5 km, respectively. However, the negative departures were not on the whole as great in absolute value as the positive departures referred to above (e. g., at 2 km, Fargo,  $-5$  percent; Cheyenne,  $-3$  percent; and at 5 km, Lakehurst,  $-9$  percent; Washington,  $-9$  percent; Murrefreesboro,  $-6$  percent). The data for 5 km at Omaha, Nebr., and Selfridge Field (Mount Clemens, near Detroit), Mich., indicate that humidities were relatively low in general by small amounts over a good portion of the northeast sector of the country. At San Diego, on the southwest coast, the above-normal humidities in the surface layer ( $+5$  percent) gave way to subnormal humidities up to approximately 2.5 km (maximum departure  $-8$  percent at 1.5 km), above which super-normal humidities again appeared on the average (maximum departure  $+5$  percent at 5 km). At Oakland, the relative humidities for the month fell off rapidly with elevation in the first kilometer from 82 to 33 percent, and then fell more slowly, until at 5 km the mean value was but 19 percent as compared with 30 percent for San Diego, 36 percent for Seattle, 48 percent for Spokane, and 43 percent for Salt Lake City. In the north-central part of the country, Fargo exhibited relative humidities which were 2 to 5 percent below normal in the layer from the surface to 3 km, but 2 to 4 percent above normal in the layer from about 4 to 5 km. The mean relative humidities for Sault Ste. Marie during September were somewhat outstanding in the lower 3 km by appearing relatively high as compared with nearby stations.

The free-air resultant winds based on pilot balloon observations made during the month of September are given in table 2. In general, the directions of the resultant winds for the month did not depart greatly from normal except in a relatively few instances. In particular, stations along the Pacific coast exhibited the largest departures in this respect. At Seattle, for the level 500 m, the monthly resultant was  $360^{\circ}$ , 2.4 m. p. s., and the normal  $236^{\circ}$ , 0.7 m. p. s. For the 1 and 1.5 km levels, the orientations of the monthly resultants were  $60^{\circ}$  and  $27^{\circ}$ , respectively, clockwise with respect to the normal, hence more northerly. At Medford, the following contrasts existed between monthly resultants and normals (in paren-

theses), respectively: 2 km, 60°, 1.2 m. p. s. (151°, 0.3 m. p. s.); 3 km, 328°, 1.7 m. p. s. (254°, 2.9 m. p. s.); 4 km, 319°, 2.4 m. p. s. (276°, 3.7 m. p. s.). At Oakland, in the lowest 500 m, the monthly resultant is oriented about 20° clockwise of the normal, while from 2 to 3 km, it is oriented approximately 20° to 40° counterclockwise of the normal. San Diego and Atlanta, Ga., likewise show differences in resultant direction from normal but inasmuch as the resultant velocities were relatively small, the differences are not very significant.

The resultant velocities were generally slightly greater than normal in the southern Mississippi Valley (maximum departure at Oklahoma City, 1 km, resultant 208°, 13.7 m. p. s., normal 209°, 8.9 m. p. s.) and largely lower than normal by slight amounts at practically all levels in an east-west strip through the center of the country. In the Northern States, the resultant velocities were generally somewhat greater than normal (maximum departure Sault Ste. Marie, at 3 km, resultant 303°, 14.6 m. p. s.; normal 285°, 9.3 m. p. s.) except in New England where they were generally less than normal by small amounts.

At the 2.5 and 3 km levels, the monthly resultants indicated a small anticyclonic circulation over the extreme southern Mississippi Valley. The greater than normal resultant velocity toward the west side of the valley brought about somewhat greater than normal transport of moisture-laden air northward up the valley from the Gulf and then eastward. On the other hand, the trajectory of some of the moist air was from the Gulf over

Mexico and Texas to New Mexico and even Arizona whence it was deflected northward and eastward. To the northwest on the contrary, the trajectory of the Polar Pacific and also Polar Continental air not infrequently coming down over the Plateau and North Pacific States was to the southward, southeastward, and then eastward. The consequence of the trajectories of these contrasting air masses was an interaction which took place over a frontal zone extending roughly southwest to northeast, with the line from Arizona to Michigan forming the western limit of the zone. These conditions were conducive of above-normal precipitation over most of the States between that line and one running from east Texas to Ohio (percentages of normal precipitation for September 1936, according to Weekly Weather and Crop Bulletin, October 7, 1936; Texas, 250 percent; New Mexico, 173 percent; Oklahoma, 253 percent; Kansas, 172 percent; Missouri, 209 percent; Iowa, 211 percent; Illinois, 183 percent. Precipitation was deficient in the extreme West, Northwest, Northeast, and Southeast).

The subsidence in the Polar Pacific (P<sub>p</sub>), Polar Continental (P<sub>c</sub>), and dry Superior air (S) coming over the Pacific coast and the Northwestern States doubtless was contributory to the low humidities observed in that general region at moderate and high levels, as well as to the subnormal precipitation which occurred there.

The frequent invasions of Polar Continental and modified Polar Pacific air masses over the northeastern sector of the country was the basic cause for the deficient precipitation in that area.

TABLE 1.—Mean free-air temperatures and relative humidities obtained by airplanes during September 1936

TEMPERATURE (° C.)

Stations	Altitude (meters) m. s. l.																Number of observations		
	Surface		500		1,000		1,500		2,000		2,500		3,000		4,000			5,000	
	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal		Mean	Departure from normal
Barksdale Field (Shreveport), La. <sup>1</sup> (52 m).....	23.0	-----	23.8	-----	21.6	-----	18.9	-----	15.8	-----	13.0	-----	10.5	-----	4.6	-----	-1.1	27	
Billings, Mont. <sup>2</sup> (1,088 m).....	12.3	+0.7	-----	-----	-----	-----	14.7	+0.9	12.3	+0.9	8.9	+0.6	5.6	+0.7	-0.9	+0.8	-6.8	30	
Boston, Mass. <sup>1</sup> (5 m).....	15.3	-----	14.4	-----	12.9	-----	10.7	-----	8.4	-----	6.6	-----	4.7	-----	-0.5	-----	-5.8	26	
Cheyenne, Wyo. <sup>2</sup> (1,873 m).....	9.4	+1.1	-----	-----	-----	-----	-----	-----	11.2	+0.6	11.5	+0.2	8.7	+0.3	1.9	+0.3	-4.8	30	
El Paso, Tex. <sup>2</sup> (1,194 m).....	19.3	-----	-----	-----	-----	-----	20.2	-----	18.1	-----	15.0	-----	12.1	-----	5.1	-----	-1.3	30	
Fargo, N. Dak. <sup>2</sup> (274 m).....	13.5	+3.1	16.3	+2.8	14.4	+2.1	12.3	+2.0	9.6	+1.6	6.8	+1.3	3.2	+0.7	-2.9	+0.4	-8.4	28	
Kelly Field (San Antonio), Tex. <sup>1</sup> (206 m).....	22.3	+0.8	22.4	+0.3	20.7	+0.3	18.4	+0.4	15.9	+0.5	13.4	+0.4	11.1	+0.7	5.1	+0.5	-1.0	29	
Lakehurst, N. J. <sup>2</sup> (39 m).....	16.2	+1.4	17.1	+1.1	15.1	+1.4	13.6	+1.4	11.7	+1.3	9.7	+1.1	7.5	+1.1	3.3	+1.4	-1.2	21	
Maxwell Field (Montgomery), Ala. <sup>1</sup> (52 m).....	21.9	+1.7	23.3	+1.0	21.2	+1.2	18.0	+0.8	15.6	+0.7	13.0	+0.7	10.2	+0.7	4.5	+1.0	-0.9	29	
Miami, Fla. <sup>2</sup> (4 m).....	23.9	-----	24.6	-----	21.6	-----	18.6	-----	15.8	-----	13.2	-----	10.5	-----	5.1	-----	-0.9	29	
Mitchel Field (Hempstead, L. I.), N. Y. <sup>1</sup> (29 m).....	15.3	0.0	15.7	-0.1	13.7	-0.2	12.4	+0.1	10.5	+0.3	9.0	+0.7	6.8	+1.1	1.9	+1.4	-----	20	
Murfreesboro, Tenn. <sup>2</sup> (174 m).....	20.6	+2.5	22.4	+1.8	20.6	+1.8	17.6	+1.7	14.4	+1.2	11.6	+1.2	8.9	+1.2	3.1	+1.4	-2.5	29	
Norfolk, Va. <sup>2</sup> (10 m).....	20.5	-1.3	20.4	-0.4	17.4	-0.9	14.7	-1.0	12.6	-0.6	10.4	-0.2	7.9	-0.1	2.3	-0.1	-3.1	18	
Oakland, Calif. <sup>2</sup> (2 m).....	13.8	-----	20.9	-----	21.9	-----	19.1	-----	15.8	-----	12.6	-----	9.8	-----	3.2	-----	-3.0	30	
Oklahoma City, Okla. <sup>2</sup> (391 m).....	22.7	+4.1	23.3	+3.9	22.3	+3.0	19.7	+2.5	16.8	+1.9	13.7	+1.6	10.7	+1.6	4.5	+1.8	-1.3	27	
Omaha, Nebr. <sup>2</sup> (300 m).....	17.8	+2.3	19.3	+2.2	19.3	+0.9	17.1	+0.5	14.6	+0.4	11.7	+0.4	8.7	+0.4	2.6	+0.6	-3.9	30	
Pensacola, Fla. <sup>2</sup> (13 m).....	23.0	-0.2	23.6	+1.2	20.5	+0.7	17.4	+0.2	14.8	+0.4	12.5	+0.7	9.8	+0.9	4.1	+0.9	-1.3	30	
Salt Lake City, Utah <sup>2</sup> (1,288 m).....	10.8	-----	-----	-----	-----	-----	16.1	-----	15.5	-----	12.0	-----	8.1	-----	1.2	-----	-6.0	30	
San Diego, Calif. <sup>2</sup> (10 m).....	18.5	-0.4	17.9	+0.6	21.3	+1.4	20.7	+1.7	17.6	+0.3	14.7	+0.3	11.3	+0.1	4.9	+0.2	-2.0	30	
Sault Ste. Marie, Mich. <sup>2</sup> (221 m).....	11.6	-----	12.0	-----	10.6	-----	8.4	-----	6.0	-----	4.0	-----	1.4	-----	-3.8	-----	-9.0	30	
Scott Field (Bellefonte), Ill. <sup>1</sup> (135 m).....	19.1	+3.4	21.8	+2.1	20.5	+2.3	18.2	+2.5	15.3	+2.2	12.2	+2.0	9.3	+2.0	3.1	+2.1	-2.5	22	
Seattle, Wash. <sup>2</sup> (10 m).....	11.7	-2.8	11.9	-1.2	10.9	-0.7	9.1	-0.7	6.5	-1.1	4.6	-1.2	2.6	-1.1	-2.8	-1.5	-9.1	15	
Selfridge Field (Mount Clemens), Mich. <sup>1</sup> (177 m).....	15.0	+0.7	16.6	+0.3	15.0	+0.4	12.7	+0.4	10.4	+0.4	7.8	+0.2	5.2	+0.1	-0.4	-0.1	-6.8	28	
Spokane, Wash. <sup>2</sup> (596 m).....	9.9	-0.5	-----	-----	14.4	-0.4	12.9	-0.3	9.7	-0.2	6.3	-0.3	3.4	-0.2	-2.9	-0.4	-9.2	30	
Washington, D. C. <sup>2</sup> (13 m).....	18.5	-1.2	19.7	+0.7	17.1	-0.1	14.3	-0.6	11.7	-0.9	9.5	-0.8	7.1	-0.7	1.9	-0.5	-2.7	25	
Wright Field (Dayton), Ohio <sup>1</sup> (244 m).....	16.7	+1.8	20.3	+2.5	18.0	+0.9	16.0	+1.3	13.2	+1.0	10.6	+0.8	7.7	+0.7	1.9	+0.8	-3.5	27	

<sup>1</sup> Army.

<sup>2</sup> Weather Bureau.

<sup>3</sup> Navy.

TABLE 1.—Mean free-air temperatures and relative humidities obtained by airplanes during September 1936—Continued

## RELATIVE HUMIDITY (PERCENT)

Stations	Altitude (meters) m. s. l.																		Number of observations
	Surface		500		1,000		1,500		2,000		2,500		3,000		4,000		5,000		
	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	
Barksdale Field (Shreveport), La.	86	---	74	---	72	---	71	---	70	---	61	---	55	---	58	---	41	---	
Billings, Mont.	51	-5	---	---	---	---	47	-2	47	-1	50	+1	51	0	51	-4	50	-2	
Boston, Mass.	82	---	72	---	66	---	64	---	62	---	52	---	44	---	40	---	34	---	
Cheyenne, Wyo.	61	-4	---	---	---	---	---	---	57	-3	49	-1	47	-1	51	+3	50	+1	
El Paso, Tex.	70	---	---	---	---	---	66	---	68	---	72	---	70	---	70	---	65	---	
Fargo, N. Dak.	75	-4	62	-4	60	-2	53	-3	48	-5	45	-5	48	-2	51	+4	47	+2	
Kelly Field (San Antonio), Tex.	94	0	88	+1	77	-2	71	-2	70	-1	67	+3	61	+2	59	+10	56	+9	
Lakehurst, N. J.	87	-2	70	-2	65	-5	61	-3	60	0	55	0	51	+1	37	-5	32	-9	
Maxwell Field (Montgomery), Ala.	91	0	71	+4	69	+2	71	+5	62	+6	56	+6	53	+6	47	+1	41	0	
Miami, Fla.	93	---	80	---	75	---	73	---	72	---	69	---	65	---	58	---	53	---	
Mitchel Field (Hempstead, L. I.), N. Y.	89	-2	76	-1	75	+2	71	+4	69	+5	59	+1	52	-3	42	-7	---	---	
Murfreesboro, Tenn.	83	-4	66	-1	64	-2	67	0	68	+6	62	+5	57	+4	50	+3	34	-6	
Norfolk, Va.	88	+8	72	+1	70	+2	68	+4	61	0	55	-2	50	-2	46	-1	44	-1	
Oakland, Calif.	82	---	53	---	33	---	29	---	27	---	25	---	23	---	22	---	19	---	
Oklahoma City, Okla.	74	-7	70	-5	65	+1	66	+4	65	+6	63	+7	62	+9	61	+12	59	+14	
Omaha, Nebr.	83	-1	70	-3	58	+2	54	+1	51	0	49	0	49	+1	46	0	40	-3	
Pearl Harbor, Territory of Hawaii	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Pensacola, Fla.	90	+5	79	+1	78	+3	77	+6	71	+4	63	+1	59	+1	54	0	50	0	
Salt Lake City, Utah	58	---	---	---	---	---	42	---	37	---	38	---	40	---	42	---	43	---	
San Diego, Calif.	84	+5	78	-1	49	-5	34	-8	33	-1	31	-1	31	0	33	+2	30	+5	
Sault Ste. Marie, Mich.	88	---	77	---	71	---	67	---	61	---	57	---	64	---	54	---	51	---	
Scott Field (Belleville), Ill.	86	-4	63	0	60	0	59	+1	63	+8	61	+7	57	+7	52	+4	46	+4	
Seattle, Wash.	85	+6	77	+1	71	0	65	+1	59	+1	55	+1	48	-1	40	-4	36	-7	
Selfridge Field (Mount Clemens), Mich.	87	0	69	-1	62	-2	58	-2	56	0	52	+1	49	0	45	+1	39	-2	
Spokane, Wash.	78	+9	---	---	54	+3	50	+2	54	+4	57	+4	55	+3	51	+2	48	+3	
Washington, D. C.	87	+8	59	-9	61	-4	64	+1	64	+4	55	0	48	-3	41	-7	28	-9	
Wright Field (Dayton), Ohio	86	-3	64	-7	65	+1	64	0	65	+6	63	+10	60	+9	51	+4	46	+3	

Observations taken about 4 a. m., 75th meridian time, except along the Pacific coast and Hawaii where they are taken at dawn.

NOTE.—The departures are based on normals covering the following total number of observations made during the same month in previous years, including the current month (Years of record are given in parentheses following the number of observations): Billings, 88 (3); Cheyenne, 90 (3); Fargo, 87 (3); Kelly Field, 88 (3); Lakehurst, 45 (3); Maxwell Field, 86 (3); Mitchel Field, 73 (3); Murfreesboro, 89 (3); Norfolk, 134 (7); Oklahoma City, 86 (3); Omaha, 130 (6); Pensacola, 195 (9); San Diego, 193 (7); Scott Field, 78 (3); Seattle, 61 (7); Selfridge Field, 88 (3); Spokane, 84 (3); Washington 233 (12); Wright Field, 83 (3).

TABLE 2.—Free-air resultant winds (meters per second) based on pilot-balloon observations made near 5 a. m. (E. S. T.) during September 1936

[Wind from N=360°, E=90°, etc.]

Altitude (m) m. s. l.	Albuquerque, N. Mex. (1,554 m)		Atlanta, Ga. (309 m)		Billings, Mont. (1,088 m)		Boston, Mass. (15 m)		Cheyenne, Wyo. (1,873 m)		Chicago, Ill. (192 m)		Cincinnati, Ohio (153 m)		Detroit, Mich. (204 m)		Fargo, N. Dak. (274 m)		Houston, Tex. (21 m)		Key West, Fla. (11 m)		Medford, Oreg. (410 m)		Murfreesboro, Tenn. (180 m)	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
Surface.....	360	1.2	121	0.3	272	1.6	313	1.3	297	2.6	179	0.7	45	1.0	312	0.3	174	1.2	69	1.1	94	1.8	192	0.8	174	1.1
500.....	---	---	132	1.7	---	---	292	4.4	---	---	194	3.8	213	2.7	226	1.2	207	2.4	167	4.8	103	3.9	220	0.5	182	5.6
1,000.....	---	---	169	1.8	---	---	382	5.0	---	---	226	2.8	248	5.9	259	2.3	239	3.8	169	5.7	109	3.9	315	0.6	211	6.4
1,500.....	---	---	221	1.3	269	2.7	266	5.3	---	---	264	2.6	256	5.2	265	3.9	284	6.1	166	5.4	102	2.8	71	0.8	226	4.8
2,000.....	121	0.9	196	0.3	274	2.8	272	8.0	288	3.6	263	3.8	248	5.0	270	5.6	287	6.6	170	4.7	107	2.4	60	1.2	233	3.2
2,500.....	255	1.8	132	0.3	280	4.9	---	---	271	4.2	264	5.1	250	5.0	280	7.0	286	9.7	170	4.3	163	2.3	310	0.5	233	2.7
3,000.....	260	2.2	299	0.5	258	7.1	---	---	259	4.1	252	6.4	263	4.4	273	8.2	257	6.3	172	3.9	93	2.1	328	1.7	249	2.4
3,500.....	242	2.6	296	2.8	256	10.0	---	---	255	5.1	257	7.8	286	8.2	283	8.9	---	---	183	2.3	34	1.4	319	2.4	246	3.7
5,000.....	226	1.3	246	3.4	257	10.8	---	---	261	5.5	---	---	---	---	282	7.0	---	---	180	2.2	---	---	280	4.1	---	---

  

Altitude (m) m. s. l.	Newark, N. J. (14 m)		Oakland, Calif. (8 m)		Oklahoma City, Okla. (402 m)		Omaha, Nebr. (306 m)		Pearl Harbor, Territory of Hawaii (68 m)		Pensacola, Fla. <sup>1</sup> (24 m)		St. Louis, Mo. (170 m)		Salt Lake City, Utah (1,294 m)		San Diego, Calif. (15 m)		Sault Ste. Marie, Mich. (198 m)		Seattle, Wash. (14 m)		Spokane, Wash. (603 m)		Washing- ton, D. C. (10 m)	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
Surface.....	323	1.1	325	0.5	174	2.2	156	1.1	55	2.5	45	2.5	155	1.2	146	3.3	26	0.4	109	0.9	146	0.3	101	1.3	354	0.6
500.....	312	2.3	323	1.6	184	7.3	172	4.3	74	5.5	117	2.1	199	5.6	---	---	239	0.5	177	2.7	360	2.4	---	---	282	1.2
1,000.....	296	3.4	339	2.7	208	13.7	209	6.3	80	6.0	135	1.8	231	5.5	---	---	83	1.3	256	4.2	4	2.4	234	1.1	272	1.9
1,500.....	294	5.8	320	2.0	221	9.2	227	5.1	77	4.1	139	1.8	246	4.3	156	3.5	82	0.8	269	5.9	326	2.3	256	3.2	283	3.5
2,000.....	295	6.7	285	2.0	208	5.5	241	4.5	72	2.9	132	1.7	249	5.1	170	1.9	144	0.4	277	9.2	324	3.1	263	3.3	277	3.1
2,500.....	284	7.8	277	3.1	203	4.8	276	3.3	66	1.1	120	1.1	258	4.8	193	2.2	201	2.0	290	11.6	318	4.7	271	5.1	290	3.4
3,000.....	290	9.1	210	2.5	195	4.6	288	5.6	82	1.6	79	0.6	244	4.9	230	2.6	226	1.0	303	14.6	301	5.4	276	5.6	309	5.4
4,000.....	---	---	---	---	---	---	299	6.6	---	---	331	1.0	250	6.9	256	5.0	---	---	---	---	308	6.8	---	---	---	---
5,000.....	---	---	---	---	---	---	297	5.4	---	---	---	---	---	---	278	3.9	---	---	---	---	292	9.1	---	---	---	---

<sup>1</sup> Navy stations.